IN THE CLAIMS

1-16 (canceled)

17. (currently amended) A system for treatment of pulp, comprising:

a dewatering device for dewatering said pulp to a fiber concentration of at least 20%,

a pulp shredding device for shredding said dewatered pulp substantially in the absence of ozone, said pulp shredding device including a closed pulp shredding vessel, an outlet pipe from said pulp shredding vessel, and a transport means adapted to continuously transport said shredded pulp without compressing the pulp out of said pulp shredding vessel through said outlet pipe, so that said outlet pipe is kept filled with passing pulp,

a reaction vessel for bleaching said shredded pulp through reaction with ozone gas,

a conduit gas sealed from the surroundings and connecting said outlet pipe of said pulp shredding vessel gas-tightly to said reaction vessel, so that the interior of said outlet pipe directly communicates with the interior of said reaction vessel through the interior of said conduit,

and a pressure regulation device for regulating the gas pressure in said pulp shredding vessel and the gas pressure in said reaction vessel so that ozone gas is prevented from leaking upstream through said outlet pipe into said pulp shredding vessel.

18. (previously presented) A system for treatment of pulp according to claim 17, wherein said pressure regulation device is adapted to maintain the gas pressure in said pulp shredding vessel higher than the gas pressure in said reaction vessel.

19. (previously presented) A system for treatment of pulp according to claim 18, wherein said transport means comprises a transport screw extending in said pulp shredding vessel and

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provided with at least one toothed transport thread for shredding the pulp.

20. (previously presented) A system for treatment of pulp according to claim 19, wherein said transport screw also extends in said outlet pipe of said pulp shredding vessel.

21. (previously presented) A system for treatment of pulp according to claim 17, wherein said pressure regulation device regulates the pressure difference between the gas pressure in said pulp shredding vessel and the gas pressure in said reaction vessel towards a predetermined value.

22. (previously presented) A system for treatment of pulp, comprising:

a dewatering device for dewatering said pulp to a fiber concentration of at least 20%,

a pulp shredding device for shredding said dewatered pulp, said pulp shredding device including a closed pulp shredding vessel, an outlet pipe from said pulp shredding vessel, and a transport means adapted to continuously transport said shredded pulp without compressing the pulp out of said pulp shredding vessel through said outlet pipe, so that said outlet pipe is kept filled with passing pulp,

a reaction vessel for bleaching said shredded pulp through reaction with ozone gas,

a conduit gas sealed from the surroundings and connecting said outlet pipe of said pulp shredding vessel gas-tightly to said reaction vessel, so that the interior of said outlet pipe directly communicates with the interior of said reaction vessel through the interior of said conduit,

and a pressure regulation device for regulating the gas pressure in said pulp shredding vessel and the gas pressure in said reaction vessel so that ozone gas is prevented from leaking upstream through said outlet pipe,

said pressure regulation device comprising a first fan with controllable capacity arranged in a gas outlet in said pulp shredding vessel for evacuation of gas therefrom, a second fan with controllable capacity arranged in a gas outlet in said reaction vessel for evacuation of gas therefrom, a first pressure sensor for sensing the gas pressure in said pulp shredding vessel, a second pressure sensor for sensing the gas pressure in said reaction vessel, and a regulation unit which in response to said first and second pressure sensors, respectively, regulates the capacity of said first and second fans, respectively.